

Year-to-year variations in monthly mean dewpoints at 0900 hours1. Introduction

This memorandum has been prepared in exactly the same manner as Ag.Memo.XXXII which concerned monthly mean temperatures.

2. Stations used

The same stations were used over the same period (1906-1955). The 50-year averages are as follows:-

Mean Monthly Dew-points at 0900 hours

<u>Station</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
Durham	34.0	33.9	35.8	38.8	44.3	49.2	53.0	53.2	49.6	44.2	38.5	35.6
Manchester	35.7	35.2	36.6	39.5	44.9	49.7	53.6	54.0	50.7	45.7	39.9	37.3
Spurn Head	36.0	35.4	36.7	40.1	45.4	50.4	54.3	54.7	51.6	46.6	40.7	37.8
Bidston	35.5	34.9	36.0	38.7	43.8	48.7	52.6	53.0	49.6	44.8	39.6	37.3
Cromer	35.9	35.8	37.6	41.1	46.6	51.2	55.1	55.6	52.7	47.3	41.5	37.9
Coventry	34.7	34.5	35.9	39.4	45.3	50.3	54.1	54.4	50.8	45.3	39.3	36.6
Woburn	34.9	34.4	36.3	39.6	45.7	50.3	53.8	54.1	51.2	45.7	39.4	36.6
Bath	36.2	35.6	37.0	40.4	46.1	50.5	54.1	54.7	51.6	46.4	40.3	37.6
Plymouth	39.3	38.2	39.5	41.9	47.2	52.3	55.5	56.6	53.8	49.1	43.2	40.7
Newquay	40.0	39.1	40.5	42.9	48.1	52.5	55.8	56.5	53.7	49.1	43.9	41.2
Kew	35.2	34.6	36.0	39.1	45.3	49.7	53.4	53.9	51.0	45.8	40.0	37.2
Eastbourne	37.9	37.4	39.0	42.0	47.9	52.8	56.4	57.2	54.2	49.1	42.8	39.6

3. Results

Table 1 gives the sample deviations from the 50 year average, month by month, taking the average of the samples of all 12 stations.

As in temperature, these deviations are greatest in winter and least in summer. It is noticeable that November has an unusually large negative deviation. Clearly it is not uncommon for dewpoints in that month to be, on occasion, considerably below the average, more so than in either October or December.

Table 2 gives the sample deviations, in pairs of months, for (a) stations in the north or south of the country and (b) stations on the coast or inland. In spring and autumn there is little difference to be seen between any of the groups.

In summer, the north is more variable than the south; in winter this trend is decisively reversed. The difference between coastal and inland stations is not so marked, but the inland stations vary most in summer, the coastal in winter.

4. Extremes

As in the previous memorandum, the extremes are given in Tables IIIa and IIIb and again these are not to be regarded as "records". The ranges from highest to lowest are:-

January	19.0	May	13.9	September	12.2
February	18.8	June	12.2	October	13.6
March	16.5	July	11.2	November	16.1
April	14.0	August	10.8	December	15.5

On the whole, these ranges are slightly greater than those of air temperature; it is worth noting that the August humidities seem to be the least variable.

TABLE I

Mean Deviations from Dew Point Average ($^{\circ}\text{F}$) in a sample of ten years

	1	2	3	4	5	6	7	8	9	10
January	-5.7	-3.0	-1.8	-0.9	-0.1	+0.8	+1.4	+2.0	+2.7	+4.7
February	-6.1	-3.1	-1.9	-0.9	-0.1	+0.6	+1.4	+2.3	+3.2	+4.8
March	-4.3	-2.5	-1.8	-1.1	-0.5	+0.3	+1.1	+2.0	+2.9	+4.1
April	-4.2	-2.7	-1.6	-0.9	-0.2	+0.4	+1.0	+1.7	+2.5	+3.9
May	-3.9	-2.3	-1.5	-0.8	-0.2	+0.4	+1.1	+1.7	+2.3	+3.5
June	-3.3	-2.0	-1.3	-0.7	-0.2	+0.2	+0.7	+1.3	+1.9	+3.3
July	-3.1	-1.9	-1.2	-0.8	-0.2	+0.3	+0.8	+1.3	+1.9	+2.9
August	-3.2	-1.9	-1.2	-0.7	-0.2	+0.3	+0.7	+1.2	+1.8	+3.1
September	-3.9	-2.0	-1.3	-0.7	-0.3	+0.3	+0.9	+1.5	+2.1	+3.6
October	-4.5	-2.4	-1.4	-0.8	-0.3	+0.3	+0.9	+1.5	+2.6	+4.2
November	-5.8	-3.0	-1.3	-0.6	0.0	+0.6	+1.1	+1.9	+2.9	+4.3
December	-5.1	-3.0	-2.2	-1.3	-0.3	+0.5	+1.2	+2.1	+3.1	+5.0

TABLE II

Sample deviations from dew point average for stations,
(a) North and South and (b) Coastal and Inland

		1	2	3	4	5	6	7	8	9	10
<u>Spring</u>	N	-4.2	-2.6	-1.6	-1.0	-0.4	+0.3	+1.0	+1.8	+2.6	+4.0
<u>Mar-Apr</u>	S	-4.3	-2.6	-1.8	-0.9	-0.3	+0.3	+1.1	+1.9	+2.7	+3.9
	Coastal	-4.1	-2.5	-1.4	-0.8	-0.4	+0.3	+1.0	+1.8	+2.6	+3.9
	Inland	-4.4	-2.7	-1.9	-1.1	-0.4	+0.3	+1.1	+2.0	+2.8	+4.1
<u>Early Summer</u>	N	-3.8	-2.2	-1.4	-0.7	-0.2	+0.4	+0.9	+1.6	+2.2	+3.4
<u>May-Jun</u>	S	-3.4	-2.1	-1.3	-0.8	-0.3	+0.3	+0.8	+1.4	+2.0	+3.4
	Coastal	-3.3	-1.9	-1.2	-0.7	-0.2	+0.3	+0.8	+1.4	+1.9	+3.0
	Inland	-3.9	-2.3	-1.5	-0.8	-0.3	+0.3	+0.9	+1.6	+2.3	+3.8
<u>Mid-Summer</u>	N	-3.3	-2.0	-1.4	-0.8	-0.2	+0.3	+0.8	+1.3	+2.0	+3.2
<u>Jul-Aug</u>	S	-3.0	-1.7	-1.1	-0.6	-0.2	+0.3	+0.7	+1.2	+1.7	+2.9
	Coastal	-3.2	-1.9	-1.2	-0.6	-0.2	+0.3	+0.7	+1.2	+1.8	+2.9
	Inland	-3.1	-1.9	-1.3	-0.8	-0.3	+0.3	+0.7	+1.2	+1.9	+3.2
<u>Autumn</u>	N	-4.1	-2.1	-1.3	-0.8	-0.4	+0.2	+0.9	+1.5	+2.3	+3.9
<u>Sep-Oct</u>	S	-4.2	-2.3	-1.4	-0.7	-0.2	+0.3	+0.9	+1.6	+2.3	+3.9
	Coastal	-4.2	-2.1	-1.3	-0.7	-0.4	+0.2	+0.8	+1.4	+2.3	+4.0
	Inland	-4.2	-2.3	-1.4	-0.8	-0.3	+0.3	+0.9	+1.6	+2.3	+3.8
<u>Early Winter</u>	N	-5.1	-2.9	-1.6	-0.8	-0.2	+0.5	+1.1	+1.7	+2.8	+4.5
<u>Nov-Dec</u>	S	-5.9	-3.1	-1.9	-1.1	-0.2	+0.6	+1.3	+2.2	+3.2	+4.8
	Coastal	-5.5	-2.9	-1.6	-0.9	-0.1	+0.6	+1.2	+2.0	+2.9	+4.5
	Inland	-5.4	-3.1	-1.9	-1.0	-0.2	+0.6	+1.2	+2.0	+3.1	+4.8
<u>Late Winter</u>	N	-5.6	-2.7	-1.6	-0.8	0.0	+0.6	+1.3	+1.8	+2.6	+4.3
<u>Jan-Feb</u>	S	-6.3	-3.4	-2.1	-1.1	-0.2	+0.7	+1.6	+2.4	+3.3	+5.2
	Coastal	-5.7	-3.1	-1.8	-0.9	-0.2	+0.7	+1.4	+2.2	+3.0	+4.6
	Inland	-6.1	-3.1	-1.9	-0.9	0.0	+0.7	+1.4	+2.1	+3.0	+4.9

TABLE III (a)

Extreme deviations of monthly mean dew-points (maximum) 1906-55

Month	Mean of Stations				Extreme		
	North	South	Coastal	Inland	Deviation	Station	Year
January	+5.8	+6.7	+5.8	+6.7	+7.6	Manchester	1916
February	+5.3	+6.6	+5.0	+6.3	+7.6	Woburn	1926
March	+5.5	+4.5	+4.9	+5.1	+6.9	Manchester	1912
April	+5.2	+5.1	+4.6	+5.8	+7.8	Manchester	1914
May	+4.5	+5.3	+4.9	+4.9	+6.6	Plymouth	1911
June	+4.7	+4.5	+3.5	+5.7	+6.4	Durham	1940
July	+4.0	+3.9	+3.4	+4.5	+5.8	Woburn	1925
August	+4.6	+3.9	+4.1	+4.5	+5.7	Manchester	1911
September	+5.1	+5.2	+5.1	+5.2	+6.5	Eastbourne	1949
October	+5.1	+5.1	+5.2	+5.0	+6.3	Cromer	1920
November	+5.2	+5.2	+5.2	+5.1	+7.2	Cromer	1906
December	+6.4	+6.8	+6.5	+6.6	+7.2	Coventry	1934

TABLE III (b)

Extreme deviations of monthly mean dew-points (minimum) 1906-55

Month	Mean of Stations				Extreme		
	North	South	Coastal	Inland	Deviation	Station	Year
January	-8.1	-8.6	-7.0	-9.7	-11.4	Coventry	1940
February	-8.0	-9.3	-8.5	-8.9	-11.2	Woburn	1947
March	-5.7	-7.4	-6.6	-6.5	-9.5	Newquay	1955
April	-5.3	-5.4	-5.1	-5.6	-6.2	Manchester	1906
May	-5.3	-5.3	-5.1	-5.5	-7.3	Eastbourne	1942
June	-4.7	-4.0	-4.1	-4.6	-5.8	Spurn	1916
July	-4.0	-3.9	-3.9	-4.1	-5.4	Eastbourne	1919
August	-4.0	-4.3	-4.3	-4.0	-5.1	Eastbourne	1920
September	-5.0	-5.1	-5.2	-4.9	-5.7	Eastbourne	1912
October	-5.6	-5.9	-6.0	-5.6	-7.3	Eastbourne	1919
November	-6.7	-7.6	-7.1	-7.2	-8.9	Bath	1915
December	-5.7	-7.8	-6.9	-6.6	-8.3	Plymouth) Newquay) Eastbourne)	1933